Patent claims

1. A method for isolating and purifying nucleic acids and/or oligonucleotides from a biological sample, characterized in that

   - the biological sample is disrupted, protein components and other insoluble components are removed,

   - an aqueous solution of potassium acetate is added to the residue and non-soluble components are removed,

   - the potassium acetate-containing solution is mixed and incubated with an alcoholic solution containing a detergent,

   - the supernatant obtained is contacted and incubated with a silica gel-like support material, and

   - the purified nucleic acids and/or oligonucleotides are isolated from the soluble fraction.

2. The method as claimed in claim 1, characterized in that the alcoholic solution is a mixture of isopropanol with an ionic detergent.

3. The method as claimed in claim 1 or 2, characterized in that the alcoholic solution contains one or more ionic detergents at a concentration of 0.5 to 10% (w/v) in 100% strength alcohol.

4. The method as claimed in any of claims 1 to 3, characterized in that an aqueous solution containing 1 to 6 M potassium acetate is used.

5. The method as claimed in claim 4, characterized in that the solution contains 2 to 4 M potassium acetate.

6. The method as claimed in any of claims 1 to 5, characterized in that the silica gel-like support material used is a suspension of silicon dioxide.

7. The method as claimed in any of claims 1 to 6, characterized in that the silica gel-like support material is rewashed with acetone.

8. The method as claimed in any of claims 1 to 7, characterized in that plasmid DNA with an endotoxin content of less than 100 U/µg is obtained.

9. The method as claimed in claim 8, characterized in that the endotoxin content is not more than 10 U/µg of plasmid DNA.

10. An endotoxin-free nucleic acid or oligonucleotide or a nucleic acid or oligonucleotide with reduced endotoxin content obtainable according to a method as claimed in any of claims 1 to 9.

11. The use of nucleic acids and/or oligonucleotides obtained according to any of the methods as claimed in any of claims 1 to 9 for transfecting eukaryotic or prokaryotic cells.

12. The use of a nucleic acid and/or oligonucleotides obtained according to any of the methods as claimed in any of claims 1 to 9 for producing an agent for the treatment of genetic disorders.

13. A composition comprising the following components:

- at least one solution suitable for the disruption of a biological sample,
- an aqueous potassium acetate solution,
- a solution of detergent/alcohol, and
- a silica gel-like support material.

14. The composition as claimed in claim 13, characterized in that the following components are included:

- a solution suitable for alkaline lysis of biological sample material,
- a salt solution containing 1 to 6 M potassium acetate,
- an alcoholic solution containing 0.5 to 10% (w/v) SDS in 100% strength isopropanol and
- a silica gel-like support material.

15. The composition as claimed in claim 13 or 14, characterized in that the support material included is a suspension of silicon dioxide.

16. The use of potassium acetate for isolating, purifying and/or separating endotoxin-free nucleic acids and/or oligonucleotides or nucleic acids and/or oligonucleotides with reduced endotoxin content from and of, respectively, a pre-purified biological sample.